```
LLL              IIIIIIIII   BBBBBBBBBBBB   RRRRRRRRRRR    TTTTTTTTTTTTTTT   LLL
LLL              IIIIIIIII   BBBBBBBBBBBB   RRRRRRRRRRR    TTTTTTTTTTTTTTT   LLL
LLL              IIIIIIIII   BBBBBBBBBBBB   RRRRRRRRRRR    TTTTTTTTTTTTTTT   LLL
LLL                 III      BBB      BBB   RRR      RRR        TTT          LLL
LLL                 III      BBB      BBB   RRR      RRR        TTT          LLL
LLL                 III      BBB      BBB   RRR      RRR        TTT          LLL
LLL                 III      BBB      BBB   RRR      RRR        TTT          LLL
LLL                 III      BBBBBBBBBBBB   RRRRRRRRRRR         TTT          LLL
LLL                 III      BBBBBBBBBBBB   RRRRRRRRRRR         TTT          LLL
LLL                 III      BBBBBBBBBBBB   RRRRRRRRRRR         TTT          LLL
LLL                 III      BBB      BBB   RRR   RRR           TTT          LLL
LLL                 III      BBB      BBB   RRR   RRR           TTT          LLL
LLL                 III      BBB      BBB   RRR    RRR          TTT          LLL
LLL                 III      BBB      BBB   RRR      RRR        TTT          LLL
LLL                 III      BBB      BBB   RRR      RRR        TTT          LLL
LLLLLLLLLLLLLLL     III      BBBBBBBBBBBB   RRR      RRR        TTT          LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL     III      BBBBBBBBBBBB   RRR      RRR        TTT          LLLLLLLLLLLLLLL
LLLLLLLLLLLLLLL     III      BBBBBBBBBBBB   RRR      RRR        TTT          LLLLLLLLLLLLLLL
```

```
 000000    TTTTTTTTTT   SSSSSSSS    CCCCCCCC  VV        VV  TTTTTTTTTT  PPPPPPP    DDDDDDD
 000000    TTTTTTTTTT   SSSSSSSS    CCCCCCCC  VV        VV  TTTTTTTTTT  PPPPPPP    DDDDDDD
00    00       TT       SS          CC         VV      VV       TT      PP    PP   DD     DD
00    00       TT       SS          CC         VV      VV       TT      PP    PP   DD     DD
00    00       TT       SS          CC         VV      VV       TT      PP    PP   DD     DD
00    00       TT       SS          CC         VV      VV       TT      PP    PP   DD     DD
00    00       TT         SSSSSS    CC         VV      VV       TT      PPPPPPP    DD     DD
00    00       TT         SSSSSS    CC         VV      VV       TT      PPPPPPP    DD     DD
00    00       TT             SS    CC          VV    VV        TT      PP         DD     DD
00    00       TT             SS    CC          VV    VV        TT      PP         DD     DD
00    00       TT             SS    CC           VV  VV         TT      PP         DD     DD
00    00       TT             SS    CC           VV  VV         TT      PP         DD     DD  ....
 000000        TT       SSSSSSSS      CCCCCCCC     VVVV          TT      PP          DDDDDDD   ....
 000000        TT       SSSSSSSS      CCCCCCCC     VV            TT      PP          DDDDDDD   ....

LL          IIIIII     SSSSSSSS
LL          IIIIII     SSSSSSSS
LL            II       SS
LL            II       SS
LL            II       SS
LL            II       SS
LL            II         SSSSSS
LL            II         SSSSSS
LL            II             SS
LL            II             SS
LL            II             SS
LL            II             SS
LLLLLLLLLL  IIIIII     SSSSSSSS
LLLLLLLLLL  IIIIII     SSSSSSSS
```

```
0000    1                  .TITLE  OTS$CVTPD_R9     Convert Packed to Double
0000    2                  .IDENT  /1-005/          ; File: OTSCVTPD.MAR Edit: PLL1005
0000    3
0000    4
0000    5          ;******************************************************************
0000    6          ;*                                                                *
0000    7          ;* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                        *
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0000   23          ;* SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.         *
0000   24          ;*                                                                *
0000   25          ;*                                                                *
0000   26          ;******************************************************************
0000   27
0000   28          ;
0000   29          ; FACILITY: LANGUAGE INDEPENDENT SUPPORT
0000   30          ;++
0000   31          ; ABSTRACT:
0000   32          ;       This module contains the routine that converts packed numbers
0000   33          ;       to double floating.
0000   34          ;
0000   35          ;--
0000   36          ;
0000   37          ;
0000   38          ; VERSION: 1
0000   39          ;
0000   40          ; HISTORY:
0000   41          ;
0000   42          ; AUTHOR:
0000   43          ;       Marty Jack, 14-Mar-1979
0000   44          ;
0000   45          ; MODIFIED BY:
0000   46          ;
0000   47          ;
0000   48          ;
```

OTS$CVTPD_R9
1-005

F 1

Convert Packed to Double          16-SEP-1984 00:25:19  VAX/VMS Macro V04-00     Page  2
HISTORY  ; Detailed Current Edit History  6-SEP-1984 11:13:14  [LIBRTL.SRC]OTSCVTPD.MAR;1      (2)

```
0000    50              .SBTTL  HISTORY          ; Detailed Current Edit History
0000    51
0000    52
0000    53  ; Edit History for Version 1 of OTSCVTPD
0000    54  ;
0000    55  ; 1-001 - Original.  MLJ 14-Mar-1979
0000    56  ; 1-002 - Make external references explicit. RKR 17-JULY-1979
0000    57  ; 1-003 - Change all references to FOR$CNV_IN_DEFG to OTS$CVT_T_D
0000    58  ;         RKR 27-SEPT-79
0000    59  ; 1-004 - Cosmetic changes. RKR 18-OCT-79
0000    60  ; 1-005 - Change source name to OTS$ but retain old entry point name.
0000    61  ;         PLL 21-Jan-82
```

OTS$CVTPD_R9
1-005

G 1

Convert Packed to Double          16-SEP-1984 00:25:19  VAX/VMS Macro V04-00    Page  3
DECLARATIONS                       6-SEP-1984 11:13:14  [LIBRTL.SRC]OTSCVTPD.MAR;1        (3)

```
0000        63                  .SBTTL  DECLARATIONS
0000        64
0000        65      ;
0000        66      ; INCLUDE FILES:
0000        67      ;
0000        68          $DSCDEF
0000        69
0000        70      ;
0000        71      ; EXTERNAL SYMBOLS:
0000        72          .DSABL  GBL                 ; Prevent undeclared symbols from being
0000        73                                      ; automatically global
0000        74
0000        75          .EXTRN  OTS$CVT_T_D         ; D, E, F, G Conversion routine
0000        76      ;
0000        77
0000        78      ;
0000        79      ; MACROS:
0000        80          NONE
0000        81      ;
0000        82
0000        83      ; PSECT DECLARATIONS:
0000        84      ; PSECT DECLARATIONS:
00000000    85          .PSECT  _OTS$CODE           PIC, SHR, LONG, EXE, NOWRT,-
0000        86                                      USR, CON, REL, LCL, RD
0000        87
0000        88      ;
0000        89      ; EQUATED SYMBOLS:
0000        90          NONE
0000        91      ;
0000        92
0000        93
0000        94      ; OWN STORAGE:
0000        95          NONE
0000        96      ;
```

```
                                     0000   98                    .SBTTL  OTS$CVTPD_R9
                                     0000   99
                                     0000  100  ;++
                                     0000  101  ; FUNCTIONAL DESCRIPTION:
                                     0000  102  ;
                                     0000  103  ;       Converts packed numbers to double floating.
                                     0000  104  ;
                                     0000  105  ; CALLING SEQUENCE:
                                     0000  106  ;
                                     0000  107  ;       JSB OTS$CVTPD_R9 (scale.rl.v, srclen.rl.v, src.rp.r, dst.wd.r)
                                     0000  108  ;
                                     0000  109  ;       Arguments are passed in R6, R7, R8 and R9.
                                     0000  110  ;
                                     0000  111  ; INPUT PARAMETERS:
                                     0000  112  ;
                                     0000  113  ;       SCALE.rl.v                      The power of ten by which the internal
                                     0000  114  ;                                       representation of the source must be
                                     0000  115  ;                                       multiplied to scale the same as the
                                     0000  116  ;                                       internal representation of the dest.
                                     0000  117  ;       SRCLEN.rl.v                     The number of digits in the source
                                     0000  118  ;       SRC.rp.r                        The number to be converted
                                     0000  119  ;
                                     0000  120  ; IMPLICIT INPUTS:
                                     0000  121  ;
                                     0000  122  ;       All of the trap bits in the PSL are assumed off.
                                     0000  123  ;
                                     0000  124  ; OUTPUT PARAMETERS:
                                     0000  125  ;
                                     0000  126  ;       DST.wd.r                        The place to store the converted number
                                     0000  127  ;
                                     0000  128  ; IMPLICIT OUTPUTS:
                                     0000  129  ;
                                     0000  130  ;       NONE
                                     0000  131  ;
                                     0000  132  ; FUNCTION VALUE:
                                     0000  133  ;
                                     0000  134  ;       1 = SUCCESS, 0 = FAILURE
                                     0000  135  ;
                                     0000  136  ; SIDE EFFECTS:
                                     0000  137  ;
                                     0000  138  ;       Destroys registers R0 through R9.
                                     0000  139  ;
                                     0000  140  ;--
                                     0000  141
                                     0000  142
                                     0000  143  OTS$CVTPD_R9::
                                     0000  144  COB$CVTPD_R9::
                 5E  28  C2          0000  145          SOBL2   #40,SP                  ; Space for temp string and result
        08 AE 1F 68  57  08          0003  146          CVTPS   R7,(R8),#31,8(SP)       ; Make a separate sign string
                                     0009  147  ;
                                     0009  148  ; Make a descriptor for the leading separate string.
                                     0009  149  ;
                 53  DD              0009  150          PUSHL   R3                      ; Address = temp string
              7E 01  90              000B  151          MOVB    #DSC$K_CLASS_S,-(SP)    ; Class = static
              7E 0E  90              000E  152          MOVB    #DSC$K_DTYPE_T,-(SP)    ; Data type = ASCII text
              7E 20  B0              0011  153          MOVW    #32,-(SP)               ; Length = 32 bytes
                                     0014  154  ;
```

```
                                    0014    155 ; Now call the conversion routine.
                                    0014    156 ;
                    7E   56  CE     0014    157          MNEGL    R6,-(SP)              ; Scale factor
                         00  DD     0017    158          PUSHL    #0                    ; Digits in fraction
                    10   AE  9F     0019    159          PUSHAB   16(SP)                ; Address of result area
                    OC   AE  9F     001C    160          PUSHAB   12(SP)                ; Address of descriptor
         00000000'GF   04  FB     001F    161          CALLS    #4,G^OTS$CVT_T_D      ; Call the routine
                    OB   50  E9     0026    162          BLBC     RO,2$                 ; Failure, must be overflow
           69    08   AE  70     0029    163          MOVD     8(SP),(R9)            ; Store result
                    50   01  DO     002D    164          MOVL     #1,RO                 ; Indicate success
                    5E   30  CO     0030    165 1$:      ADDL2    #48,SP                ; Delete stack temps
                         05         0033    166          RSB                            ; Return
                                    0034    167 ;
                                    0034    168 ; Come here on overflow to store the reserved operand.
                                    0034    169 ;
           69    01   OF  79     0034    170 2$:      ASHQ     #15,#1,(R9)           ; Store reserved operand
                    50   D4         0038    171          CLRL     RO                    ; Indicate failure
                    F4   11         003A    172          BRB      1$                    ; Delete stack temps and return
                                    003C    173 ;
                                    003C    174          .END
```

```
COB$CVTPD_R9              00000000 RG    02
DSC$K_CLASS_S          = 00000001
DSC$K_DTYPE_T          = 0000000E
OTS$CVTPD_R9             00000000 RG    02
OTS$CVT_T_D             ******** X      00
```

```
                      +-------------------+
                      ! Psect synopsis !
                      +-------------------+
```

| PSECT name | Allocation | | PSECT No. | Attributes | | | | | | | | | | |
|------------|-----------|---|-----------|---------|---|---|---|---|---|---|---|---|---|---|
| .  ABS  . | 00000000 ( | 0.) | 00 ( 0.) | NOPIC | USR | CON | ABS | LCL | NOSHR | NOEXE | NORD | NOWRT | NOVEC | BYTE |
| $ABS$ | 00000000 ( | 0.) | 01 ( 1.) | NOPIC | USR | CON | ABS | LCL | NOSHR | EXE | RD | WRT | NOVEC | BYTE |
| _OTS$CODE | 0000003C ( | 60.) | 02 ( 2.) | PIC | USR | CON | REL | LCL | SHR | EXE | RD | NOWRT | NOVEC | LONG |

```
              +-------------------------+
              ! Performance indicators !
              +-------------------------+
```

| Phase | Page faults | CPU Time | Elapsed Time |
|-------|-------------|----------|--------------|
| Initialization | 29 | 00:00:00.04 | 00:00:01.99 |
| Command processing | 116 | 00:00:00.31 | 00:00:03.23 |
| Pass 1 | 135 | 00:00:01.14 | 00:00:04.85 |
| Symbol table sort | 0 | 00:00:00.11 | 00:00:00.11 |
| Pass 2 | 48 | 00:00:00.32 | 00:00:01.94 |
| Symbol table output | 2 | 00:00:00.01 | 00:00:00.01 |
| Psect synopsis output | 3 | 00:00:00.02 | 00:00:00.02 |
| Cross-reference output | 0 | 00:00:00.00 | 00:00:00.00 |
| Assembler run totals | 335 | 00:00:01.95 | 00:00:12.15 |

The working set limit was 1050 pages.
8117 bytes (16 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 134 non-local and 2 local symbols.
174 source lines were read in Pass 1, producing 10 object records in Pass 2.
8 pages of virtual memory were used to define 7 macros.

```
              +---------------------------+
              ! Macro library statistics !
              +---------------------------+
```

| Macro library name | Macros defined |
|--------------------|----------------|
| _$255$DUA28:[SYSLIB]STARLET.MLB;2 | 4 |

190 GETS were required to define 4 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:OTSCVTPD/OBJ=OBJ$:OTSCVTPD MSRC$:OTSCVTPD/UPDATE=(ENH$:OTSCVTPD)

OTSCVTPD
LIS

OTSCVTTF
LIS

OTSCVTRFP
LIS

OTSCVTRT
LIS

OTSCVTTOL
LIS

OTSCVTPG
LIS

OTSCVTTR
LIS

OTSCVTRHP
LIS

OTSLINKAG
LIS

OTSCVTRDP
LIS

OTSCVTT-IL
LIS

OTSCVTTLL
LIS

OTSCVTPF
LIS

OTSCVTRGP
LIS

OTSMOVE
LIS

OTSMSG
LIS

OTSCVTPH
LIS

OTSLUN
LIS